NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

SURFACE DRAINAGE, FIELD DITCH

(Feet)

CODE 607

DEFINITION

A graded ditch for collecting excess water in a field.

PURPOSE

To drain surface depressions; collect or intercept excess surface water, such as sheet flow, from natural and graded land surfaces or channel flow from furrows and carry it to an outlet; and collect or intercept excess subsurface water and carry it to a stable outlet.

CONDITIONS WHERE PRACTICE APPLIES

Applicable sites are flat or nearly flat and:

- Have soils that are slowly permeable (low permeability) or that are shallow over barriers, such as rock or clay, which hold or prevent ready percolation of water to a deep stratum.
- Have surface depressions or barriers that trap rainfall.
- Have insufficient land slope for ready movement of runoff across the surface.
- Receive excess runoff or seepage from uplands.
- Require the removal of excess irrigation water.
- Require control of the water table.
- Have adequate outlets available for disposal of drainage water by gravity flow or pumping.

CRITERIA

Drainage field ditches shall be planned as integral parts of a drainage system for the field served and shall collect and intercept water and carry it to a stable outlet with continuity and without ponding. Field ditches shall be designed and located to prevent possible damages above or below the point of discharge that might involve legal actions.

Investigations. An adequate investigation shall be made of all sites. Investigation shall include wetland evaluation and an inventory on nearby water supplies. The soils and geology shall be investigated to a least two feet below the proposed excavations.

Location. Ditches shall be established, insofar as topography and property boundaries permit, in straight or nearly straight courses. Random alignment may be used to follow depressions and isolated wet areas of irregular or undulating topography. Excessive cuts and the creation of small irregular fields shall be avoided.

On extensive areas of uniform topography, collection or interception ditches shall be installed as required for effective drainage.

Design. The size, depth, side slopes, and cross section area shall:

- Be adequate to provide the required drainage for the site.
- Permit free entry of water from adjacent land surfaces without causing excessive erosion.
- Provide effective disposal or reuse of excess irrigation water (if applicable).

- Conduct flow without causing excessive erosion.
- Provide stable side slopes based on soil characteristics.
- Permit crossing by field equipment if feasible.
- Permit the use of construction and maintenance with available equipment.

When surface field ditches discharge into ditches of greater depth, the outfall shall be graded back on a non-erosive slope and/or other protective measures shall be provided.

Field ditches shall not outlet directly into river, streams, lakes or other bodies of water if the quality of the discharge is in question. Measures, such as filter strips, shall be adequately designed and installed to treat the polluted discharge.

Vegetative Protection. All side slopes of newly constructed ditches that are 1.5 (horizontal) to 1.0 (vertical) or flatter shall be protected by establishment of a suitable vegetative cover. A seeding plan shall be developed with lime, fertilizer and seed mixture recommendations. Related disturbed areas shall also be vegetated if compatible with intended land use or erosion is possible.

Area shall be fenced where necessary to protect the vegetation.

CONSIDERATIONS

Water Quantity

1. Effects on water budget components, especially relationships between runoff and infiltration.
2. The effect of changes in the water table on the rooting depth for anticipated land uses.

Water Quality

1. Downstream effects of erosion and yields of sediment and sediment-attached substances.
2. Effects on the salinity of the soil in the drained field.
3. Effects on the loadings of dissolved substances downstream.
4. Potential changes in downstream water temperature.
5. Effects on wetlands or other water-related wildlife habitat.
6. Effects on the visual quality of downstream watercourses.

PLANS AND SPECIFICATIONS

Plans and specifications for constructing drainage field ditches shall be in keeping with this standard and shall describe the requirements for properly installing the practice to achieve its intended purpose.

OPERATION AND MAINTENANCE

An operation and maintenance (O&M) plan shall be prepared for Field Ditches and any other associated conservation practices that is consistent with the purposes of the practice, its intended life, safety requirements, and the criteria for its design.

Maintenance needs are to be discussed with the landowner or operator who is responsible for maintaining the practices installed with NRCS assistance. Any hazards must be brought to the attention of the responsible person. Prior to construction, sufficient copies of the O&M plan shall be provided to the owner/operator, designer, and approving agencies. The owner shall sign the O&M plan to indicate an understanding of the requirements and a commitment to operate and maintain the area as specified.